

AN ANALYTICAL FRAMEWORK ON SERVICE PERCEPTION IN INDIAN AIRLINES BEFORE AND AFTER CORPORATE RESTRUCTURING

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ABSTRACT

The present study aims to identify the major problem areas related to the passenger service quality in Indian Airlines, before and after the corporate restructuring undertaken. For this purpose, descriptive research design was developed with personal interviews and close ended questionnaire (for passengers), on the basis of 22 parameters of passenger service quality. For this study, data were collected from the passengers travelling to and from Kolkata, Delhi, Mumbai, Chennai and Bangalore airport. After collecting data from 306 respondents through questionnaire survey, Factor analysis and Chi-Square Test had been used with the help of SPSS software and Statistics Calculator, to analyze the data and to identify the most fragile areas related to passengers service quality in pre and post restructuring.

This study reveals that this state owned public organization is still suffering from the technical problems like Availability of flight i.e. punctuality of the flights and easy availability of tickets, followed by some human factors such as Luggage Handling, Staff Assistance, Responsiveness and Assurance.

A Bayesian probabilistic framework has been developed from the dataset, which corroborates the findings of factor analysis. Scenario and causal analysis of the Bayesian Framework suggests policy interventions and measures, so that this age old airlines can regain its previous status.

KEYWORDS: Luggage Handling, Staff Assistance, Responsiveness & Assurance

Received: Jul 14, 2017; **Accepted:** Aug 04, 2017; **Published:** Aug 21, 2017; **Paper Id.:** IJBMR AUG20178

INTRODUCTION

Evolving economic scenario and consequent changes in ground reality and reforms have compelled reshaping Indian aviation industry. Years back, after liberalization, entry of private operators and the high cost of fuel led to a number of mergers in Indian aviation, including a high-profile agreement to combine Indian Airlines with Air India. But, the turbulence is likely to continue, as new carriers enter the fray to fill the gaps left by consolidation.

The industry had a cherished past in India, beginning early in the second half of 20th century, when a crowd of private airlines attempted entry and competed for increased market share. Chaos reigned in the absence of workable regulations, and in 1953, a few years after independence; the airlines were nationalized and merged to set up two flag carriers i.e. Air India for international operations, and Indian Airlines for the domestic sector. It was one of the two flag carriers of India, the other being Air India. The airline officially merged into Air India on 27 February 2011, operating with a fleet of over 130 aircraft.

The present study aims to identify the major problem areas related to the passenger service quality in Indian Airlines, before and after the corporate restructuring; to cross-check the impact of the merger on those particular areas, second round interview from different customer segments has been conducted; and to develop an

management framework to facilitate policy implementation regarding enhancement of passenger service of Indian airlines.

LITERATURE REVIEW

According to the conventional professional wisdom, restructuring is defined as any major reconfiguration of internal administrative structure that is associated with an intentional management change program (e.g. McKinley and Scherer 2000).

Restructuring is commonly referred to as downsizing, which may boost organizational efficiency and effectiveness (e.g. Smallwood and Jackson, 1987; Bailey and Szerdy, 1988; Freeman and Cameron, 1993; Bartol, Martin, Tein, and Matthews, 2001). It is suggested that the environment shift, technology changes, organizational growth and leadership changes are the reasons that lead to restructuring (e.g. Miller and Friesen 1984, cited in Bolman and Deal, 1997, p.73). There is also a perception that the adoption of advanced manufacturing technology and new human-resource management practices favor organizational change (e.g. Massimo and Delmastro 2002).

According to previous research studies, 70 - 80% of acquisitions fail, meaning that they create no wealth for the share owners of the acquiring company (e.g. Selden and Colvin 2003).

As it is usually referred to, 21st century is considered as the century of service industry. Service industry is growing at a rapid pace across developed and developing countries, and present research, as such, is based on the service quality of Indian airlines. The objective of this study is to find out whether the corporate restructuring of Indian airlines has brought any improvement in their passenger service.

METHODOLOGY

This study adopted descriptive research design to portray the service perception of airline customers. Primary data were collected with the help of personal interview and close ended questionnaire (for the passengers), on the basis of 22 passenger service quality parameters i.e. ease of ticketing, punctuality, arrival and departure assistance, handling delays/cancellations, luggage handling, seat comfort, cleanliness, catering service, overall safety, customer complaint handling and attitude and behavior of the staff.

For this study, data were collected from the passengers travelling to and from Kolkata, Delhi, Mumbai, Chennai and Bangalore airport. After collecting data from 306 respondents through questionnaire survey, reliability analysis was performed. Factor analysis was used with the help of SPSS software to analyze the data and to identify the most fragile areas related to passenger's service of Indian airlines in pre and post restructuring phase. Henceforth, to cross check the impact of the merger, second round interview from different customer segments was taken up to analyze their views regarding passenger service quality in the Indian airlines, after its corporate restructuring. For this purpose, Chi- Square Test was done with the help of Statistics Calculator.

DATA ANALYSIS

Before Merger

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.863	22

Firstly, reliability analysis was performed on the data set. Here, the value of Cronbach's Alpha.863 is acceptable, as it confirms that there is internal consistency of the set of items of a given scale.

FACTOR ANALYSIS

Here, **Barlett's test** of sphericity is significant, as p value is .000 which is less than .05. Thus, from the perspective of Bartlett's test, factor analysis is feasible. As Bartlett's test is significant, a more discriminating index of factor analyzability is the **KMO**. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate. For this data set, it is .874 (very close to 1.0), which is very large, so the KMO also supports factor analysis.

FACTOR IDENTIFICATION

Determination Based on Eigen values

In this approach, only those factors with eigenvalues greater than 1 are considered. Other factors are not included in this model.

Here, from the SCREE PLOT and the table TOTAL VARIANCE EXPLAINED, 5 factors are identified; whose eigenvalues are more than 1.

Determination Based on Percentage of Variance

The number of factors extracted can also be determined in a way, so that the cumulative percentage of variance extracted by the factors reaches a satisfactory level.

Here, according to the analysis, the cumulative percentage of variance extracted by the 5 factors is 66.127 % (from the table TOTAL VARIANCE EXPLAINED), which is quite satisfactory.

Factor Interpretation

Factor interpretation is facilitated by identifying the variables that have large loading on the same factor. That factor can be interpreted in terms of variables that load high on it.

In the ROTATED COMPONENT MATRIX,

Component 1: Has high coefficients .770 and .669 for variables *Catering Service and Overall Safety*

Component 2: Has high coefficient .833 for variable *Arrival & Departure Assistance*

Component 3: Has high coefficients .673 and .840 for variables *Customer Complaint Handling and Attitude and Behavior of the Staff*

Component 4: Has high coefficient .773 for variable *Punctuality*

Component 5: Has high coefficient .914 for variable *Luggage Handling*

Component 1: Is labeled as *Reliability*

Component 2: Is labeled as *Staff Assistance*

Component 3: Is labeled as *Responsiveness*

Component 4: Is labeled as *Punctuality*

Component 5: Is labeled as *Luggage Handling*

As Component 1 is treated as principal component, so, in this case, *Reliability* should be the most important factor

or it can be termed as the major problem areas of Indian Railways at present, followed by the *Staff Assistance*, *Responsiveness*, *Punctuality* and *Luggage Handling* according to the passengers.

After Merger

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
.805	22

Reliability analysis has been performed on the data set. Here the value of Cronbach's Alpha.805 is acceptable, as it confirms that there is internal consistency of the set of items of a given scale.

Factor Analysis

Here, **Barlett's test** of sphericity is significant, as p value is.000, which is less than.05; and thus, factor analysis is feasible. As Bartlett's test is significant, a more discriminating index of factor analyzability is the **KMO**. For this data set, the value of KMO is very high i.e. .824 (very close to 1.0), which is very large, so the KMO also supports factor analysis.

Factor Identification

Determination Based on Eigen values:

In this approach, only those factors with eigenvalues greater than 1 are considered. Other factors are not included in this model.

Here, from the SCREE PLOT and the table TOTAL VARIANCE EXPLAINED, 6 factors can be identified; whose eigenvalues are more than 1.

Determination Based on Percentage of Variance

The number of factors extracted can also be determined in a way, so that the cumulative percentage of variance extracted by the factors reaches a satisfactory level.

Here, according to the analysis, the cumulative percentage of variance extracted by the 6 factors is 69.101 % (from the table TOTAL VARIANCE EXPLAINED), which is quite satisfactory.

Factor Interpretation

Factor interpretation is facilitated by identifying the variables that have large loading on the same factor. That factor can be interpreted in terms of variables that load high on it.

In the COMPONENT MATRIX,

Factor 1: Has high coefficients.865 and.806 for variables **Ease of Ticketing and Punctuality**

Factor 2: Has high coefficients.816 for variables **Luggage Handling**

Factor 3: Has high coefficients.789 for variables **Behavior of the Staff**

Factor 4: Has high coefficients.715 and.682 for variables **Handling Delays and Cancellation & Customer Complaint Handling**

Factor 5: Has high coefficients.832 for variables **Seat Comfort & Safety**

Factor 6: Has high coefficients.782 for variables **Cleanliness**

Factor 1: Can be labeled as **Availability**

Factor 2: Can be labeled as **Luggage Handling**

Factor 3: Can be labeled as **Staff Assistance**

Factor 4: Can be labeled as **Responsiveness**

Factor 5: Can be labeled as **Assurance**

Factor 6: Can be labeled as **Cleanliness**

As factor 1 is treated as principal component, so, in this case, **Availability** should be the most important factor or it can be termed as the major problem areas of public airlines at present followed by the **Luggage Handling, Staff Assistance, Responsiveness, Assurance and Cleanliness** according to the passengers.

CHI-SQUARE TEST

H1: THERE IS NO DIFFERENCE OF OPINION BETWEEN THE CATEGORY OF RESPONDENTS (MALE OR FEMALE PASSENGERS) REGARDING THE STATEMENT THAT EVEN AFTER ITS CORPORATE RESTRUCTURING THE PASSENGER SERVICE QUALITY IN IA IS STILL NOT SATISFACTORY AS COMPARED TO PRIVATE AIRLINES OPERATING IN INDIA

Table 3

TYPE OF RESPONDENT	TOTAL NUMBER	YES	NO
Male Passengers	52	40	12
female Passengers	54	47	7

Using STASTICAL CALCULATOR, it is found that

Chi-square statistic = 1.842

Degree of freedom = 1

Probability of chance (p-value) = 0.1747

Here $p\text{-value} > \alpha$ ($\alpha = 0.05$)

Therefore, we accept the hypothesis

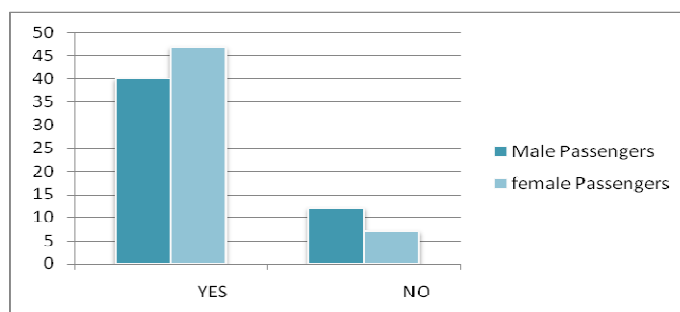


Figure 1

There is no difference of opinion between the categories of respondents (both male or female passengers agreed) regarding the statement that even after its corporate restructuring, the passenger service quality in IA is still not satisfactory, as compared to private airlines operating in India (shown in table 3 in annexure)

H2: THERE IS NO ASSOCIATION BETWEEN THE PERCEPTION OF THE YOUNG, MIDDLE AGED AND AGED PASSENGERS REGARDING THE STATEMENT THAT EVEN AFTER ITS CORPORATE RESTRUCTURING THE PASSENGER SERVICE QUALITY IN IA IS STILL NOT SATISFACTORY AS COMPARED TO PRIVATE AIRLINES OPERATING IN INDIA

Table 4

TYPE OF RESPONDENT	TOTAL NUMBER	YES	NO
Young Customers(<25)	46	41	5
Age Group 25-40	44	35	9
Age Group 40-60	36	16	20

Using STASTICAL CALCULATOR, it is found that

Chi-square statistic = 21.930

Degree of freedom = 1

Probability of chance (p-value) = 0.0000

Here $p\text{-value} < \alpha$ ($\alpha = 0.05$)

Therefore, we reject the hypothesis

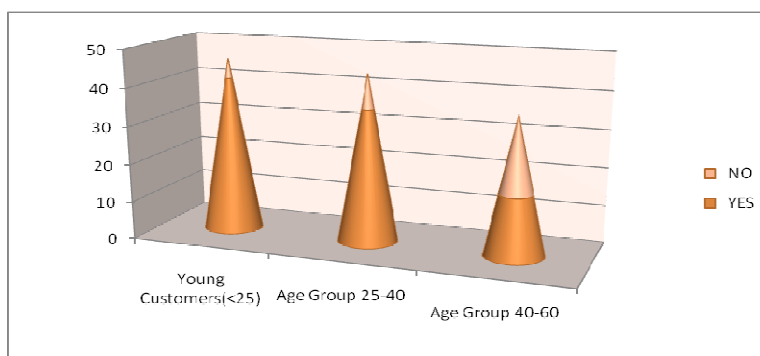


Figure 2

The perception differs from the young and aged passengers regarding the statement that even after its corporate restructuring the passenger service quality in IA is still not satisfactory as compared to private airlines operating in India (shown in table 5 in annexure)

H3: THERE IS NO DIFFERENCE OF OPINION BETWEEN THE CATEGORY OF RESPONDENTS (POSTGRADUATE, GRADUATE OR UNDERGRADUATE PASSENGERS) REGARDING THE STATEMENT THAT THE PASSENGER SERVICE QUALITY IN INDIAN AIRLINES HAS BEEN IMPROVED AFTER ITS MERGER

Table 5

TYPE OF RESPONDENT	TOTAL NUMBER	YES	NO
Postgraduate Passengers	31	20	11
Graduate Passengers	40	31	9
Undergraduate Passengers	35	30	5

Using STASTICAL CALCULATOR, it is found that

Chi-square statistic = 4.141

Degree of freedom = 2

Probability of chance (p-value) = 0.1261

Here $p\text{-value} > \alpha$ ($\alpha = 0.05$)

Therefore we accept the hypothesis

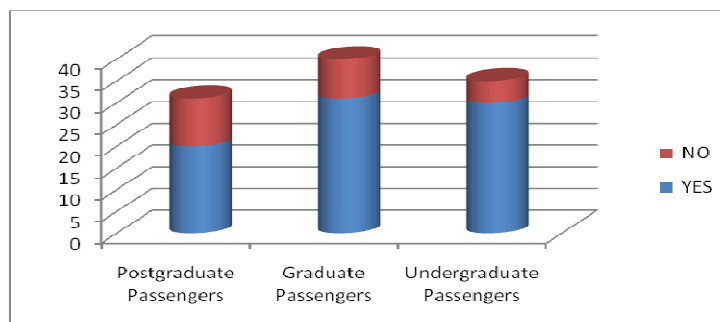


Figure 3

There is no difference of opinion between the categories of respondents (Postgraduate, Graduate or Undergraduate Passengers, all disagreed) regarding the statement that even after its corporate restructuring, the passenger service quality in IA is still not satisfactory, as compared to private airlines operating in India (shown in table 6 in annexure)

H4: THERE IS NO DIFFERENCE OF OPINION AMONG THE ECONOMY AND BUSINESS CLASS PASSENGERS REGARDING THE STATEMENT THAT EVEN AFTER ITS CORPORATE RESTRUCTURING THE PASSENGER SERVICE QUALITY IN IA IS STILL NOT SATISFACTORY AS COMPARED TO PRIVATE AIRLINES OPERATING IN INDIA

Table 6

TYPE OF RESPONDENT	TOTAL NUMBER	YES	NO
Economy class	63	57	6
Business class	43	32	11

Using STASTICAL CALCULATOR, it is found that

Chi-square statistic = 4.894

Degree of freedom = 1

Probability of chance (p-value) = 0.0270

Here $p\text{-value} < \alpha$ ($\alpha = 0.05$)

Therefore, we reject the hypothesis

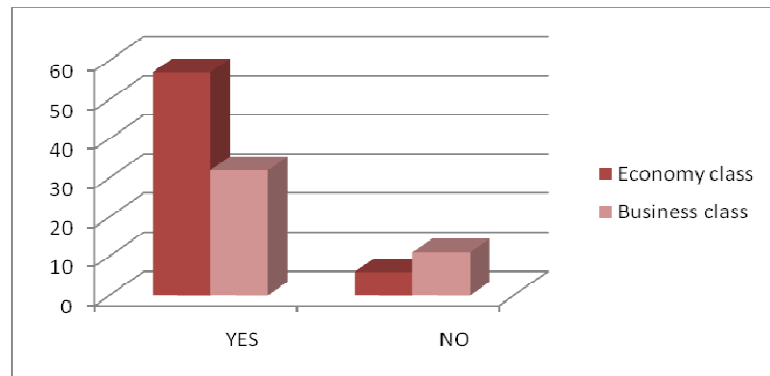


Figure 4

There is difference of opinion between the Economy class and Business class passengers regarding the statement that even after its corporate restructuring, the passenger service quality in IA is still not satisfactory, as compared to private airlines operating in India (shown in table 4 in annexure)

BAYESIAN PROBABILISTIC NETWORK: HUGIN LITE OUTPUT

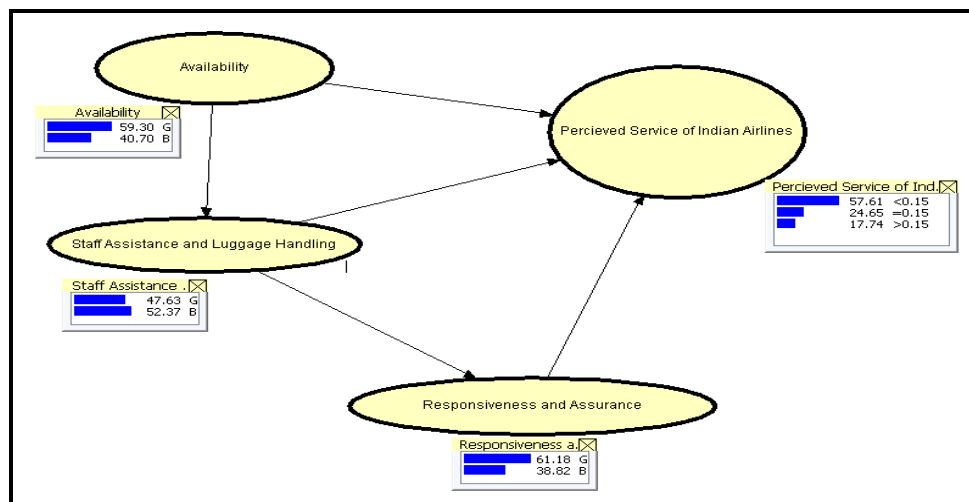


Figure 5

SCENARIO ANALYSIS 1:

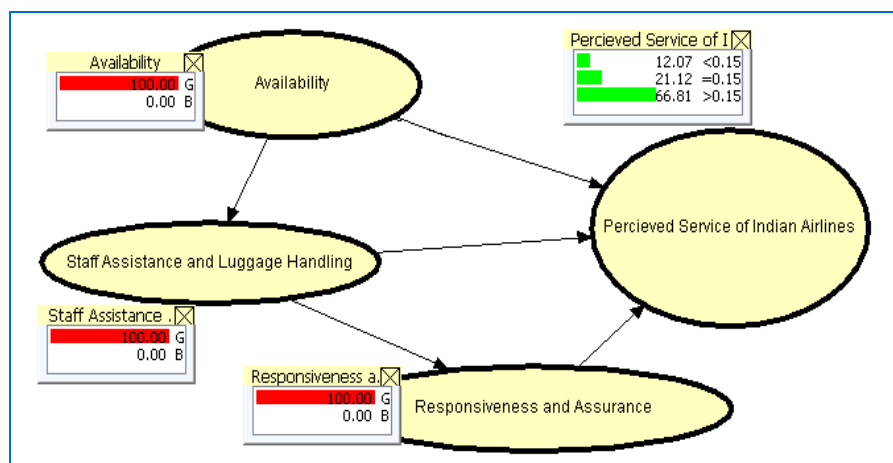


Figure 6

SCENARIO ANALYSIS 2:

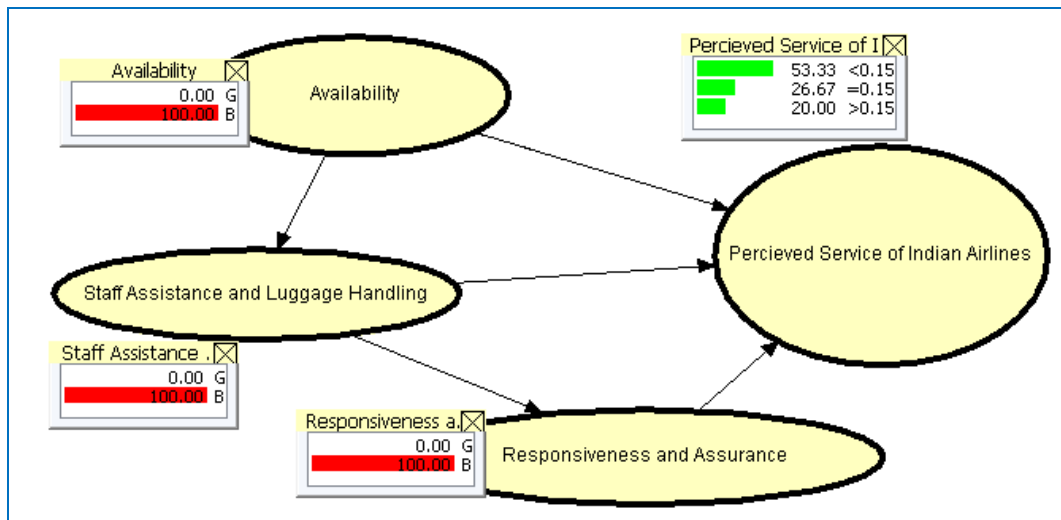


Figure 7

CAUSAL ANALYSIS 1:

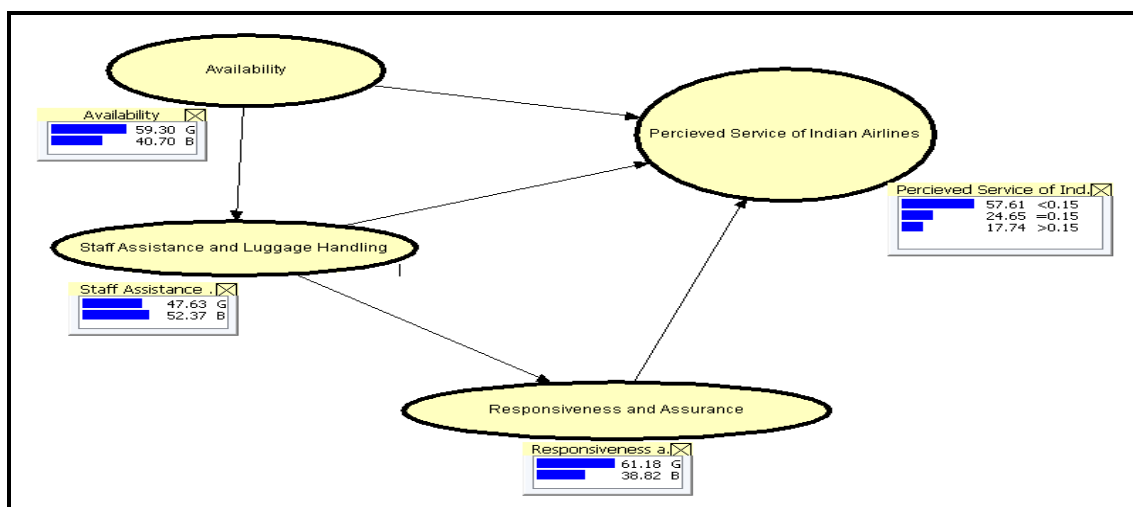
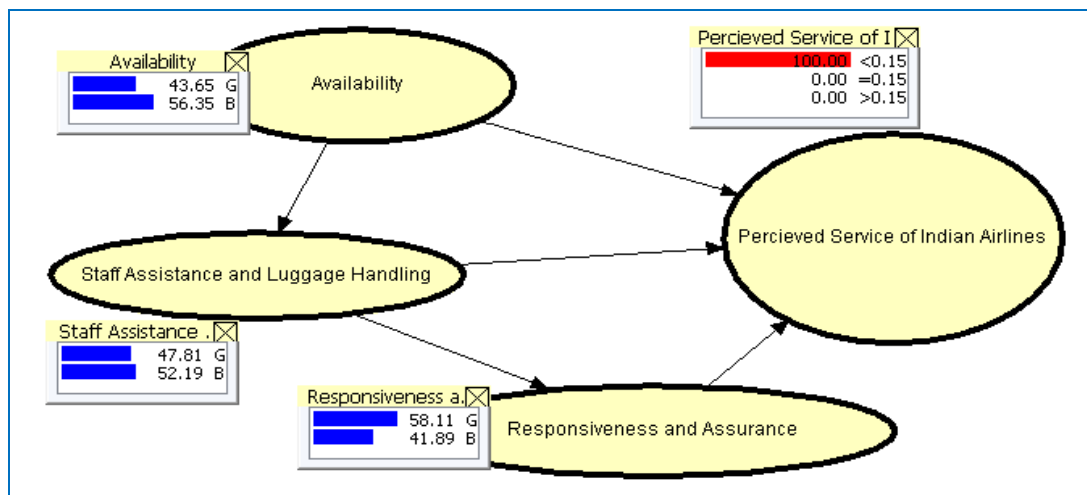


Figure 8

CAUSAL ANALYSIS 2:

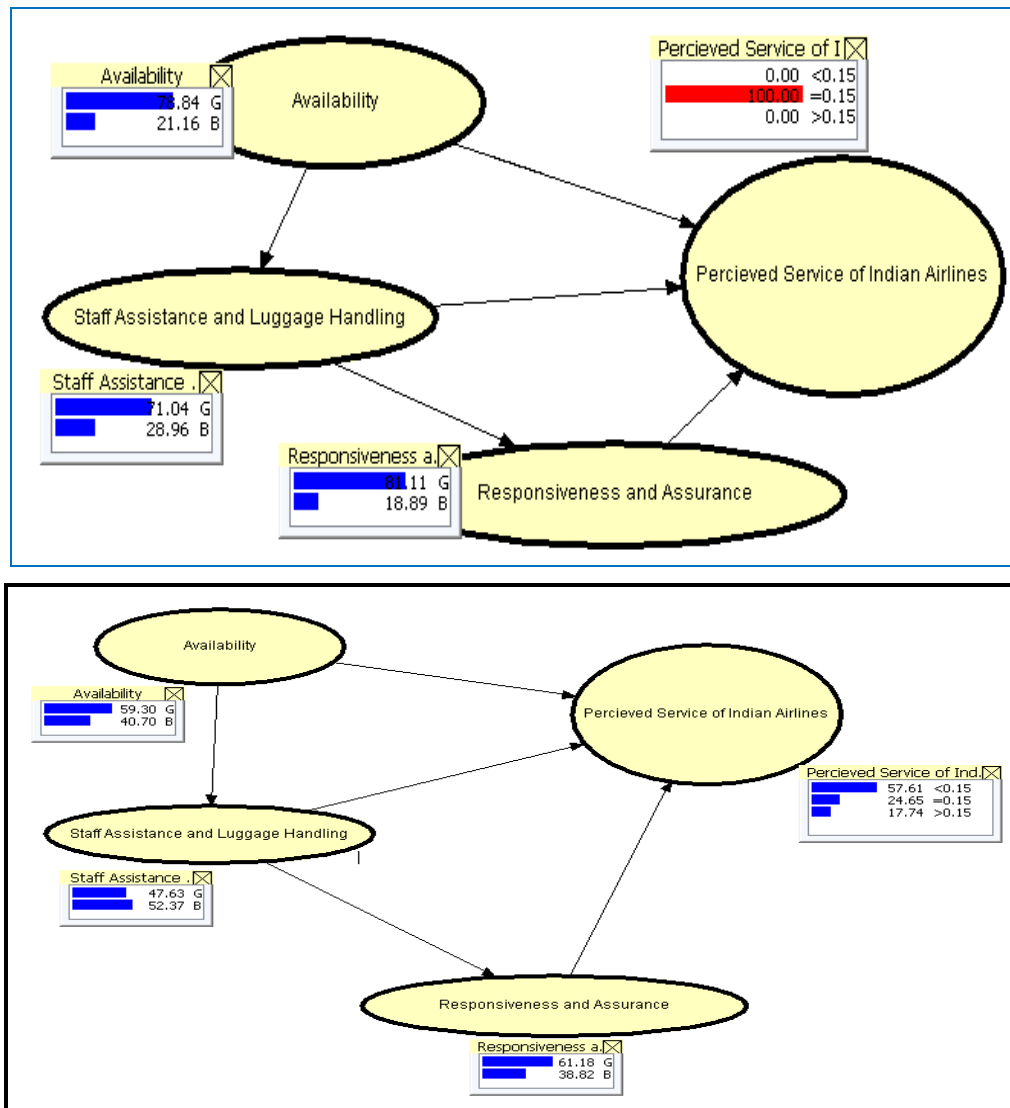
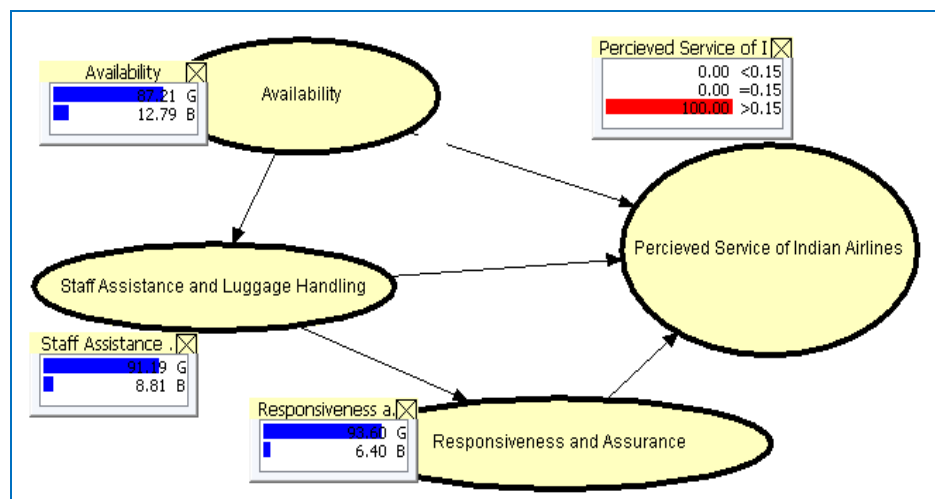


Figure 9

CAUSAL ANALYSIS 3:



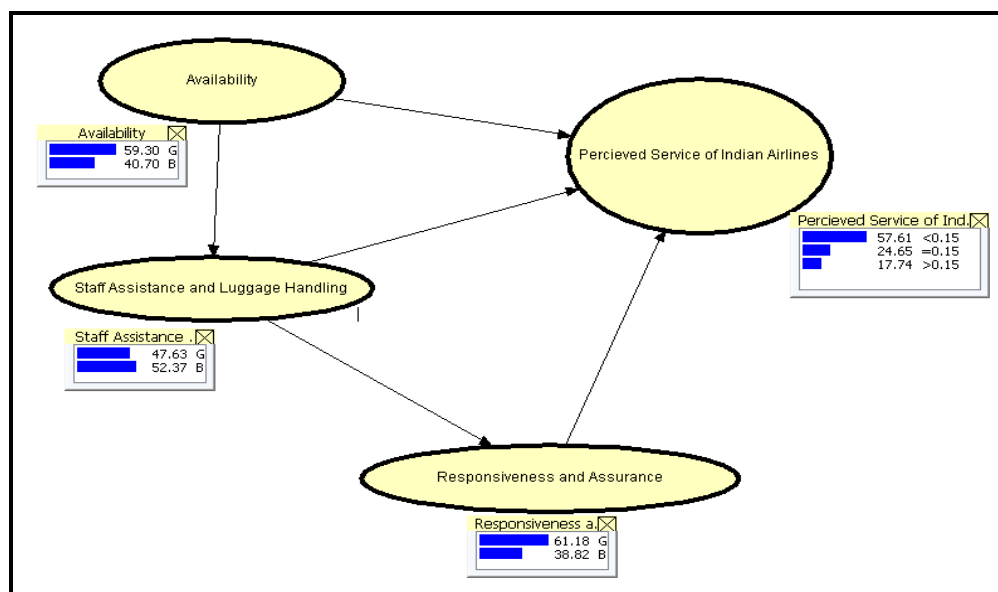


Figure 10

SCENARIO AND CAUSAL ANALYSIS

Scenario Analysis and Causal Analysis would help to analyse and make policy intervention.

Scenario Analysis: If, for example, 100 percent *Availability*, *Luggage Handling* & *Staff Assistance* and *Responsiveness* & *Assurance* are there, it shows changes in other variable, which capture the simultaneity. This is just a framework of *Perceived Service of Indian Airlines*.

Causal Analysis: Causal analysis is evidence based. It reverses the whole thing.

Actual values or evidence of information on *Perceived Service of Indian Airlines* data is propagated to all the nodes in the network i.e. used to calculate updated probabilities of all the causal factors, and as such gives us information on likely values of these causal opinion/perception variables, that may generate desired *Perceived Service of Indian Airlines*. This helps in strategic management of passenger growth, service quality, sales turnover/ market share and similar variables of interest.

FINDINGS AND CONCLUSIONS

After analysing the pre-merger data on the basis of the eleven problem areas, five major areas have been identified. As per *factor analysis*, Reliability of service in terms of safe and secure journey and in terms of providing healthy and hygienic food to their passengers is rated as the most fragile area in Indian Airlines before merger. In that very list, the next feeble area is Staff Assistance at the airport, before or after the arrival or the departure of the flight towards their passengers. Third and one of the major problems is the Responsiveness of the IA staff in general and specially in complaint handling. The next problem is the regularity and availability of the flight, which needs to be taken care of by the management to improve the image of this age-old organisation. The least rated problem area is Luggage Handling, a small percentage of the passengers have rated this as a major problem.

Now, the question arises as to whether there is any improvement after the merger, and whether it is at par with its private counterparts, with respect to passenger service quality. As per factor analysis results, *Availability* is found to be the most problematic area in public Airlines, followed by *Luggage Handling*, *Staff Assistance*, *Responsiveness*, *Assurance* and

Cleanliness. Again, while data collected from the passengers of private airlines to determine the most significant factors in private airlines, factor analysis indicates *Sensitivity* as the most important factor to be considered, followed by *Reliability*, *Responsiveness*, *Easy Ticketing and Catering Service*.

The chi-square test shows that, irrespective of gender, age group, educational background and class there is no difference of opinion among the passengers regarding the statement that even after its corporate restructuring, the passenger service quality in IA is still not satisfactory, as compared to private airlines operating in India

Scenario Analysis develops a Bayesian Probability Network to model, on the causal variables extracted from the first phase, whereas Causal Analysis calculates updated probabilities of all the causal factors and as such gives us information on likely values of these causal opinion/perception variables that may generate desired *Perceived Service of Indian Airlines*. The causal variables have, definitely, taken on values, which has resulted in good *Availability*, good *Handling & good Staff Assistance and Responsiveness & Assurance*.

Hence, this study reveals that this state owned public organisation is still suffering from the technical problem like *Availability* of flight i.e. punctuality of the flights and easy availability of tickets followed by some human factors such as *Luggage Handling, Staff Assistance, Responsiveness and Assurance*. It also needs to focus on the tangible aspects like *cleanliness* of the aircrafts. It has not yet achieved the desired state of performance to retain their existing position or to regain their previous status. So, in such a competitive environment, when all other players are trying to attract the passengers with lucrative offerings, this age old airlines is still struggling mostly with some Behavioral and attitudinal problems, and if such a situation continues in the near future, their existence may be at stake. So, it is high time to make management and employees aware and make their service more passenger-oriented.

The model combines appropriate independent or causal variables to investigate dependent service quality dimensions. It can also be utilized to construct policy interventions for a likely redressal of the situation. This means, if the marketer wants high *Perceived Service of Indian Airlines*, then it must be ensured that the causal variables take on appropriate values or on the contrary, if the marketer wants low or medium *Perceived Service of Indian Airlines*, then it must be ensured that the causal variables take on similarly appropriate values.

Thus, this research lays the foundation for future investigation on corporate restructuring, in any industry in an evolving world economy.

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